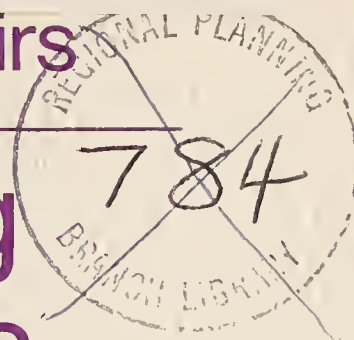
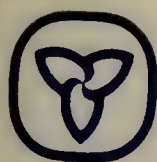


Ministry of Treasury  
and Intergovernmental Affairs



# Regional planning information needs analysis

Report on  
findings and recommendations



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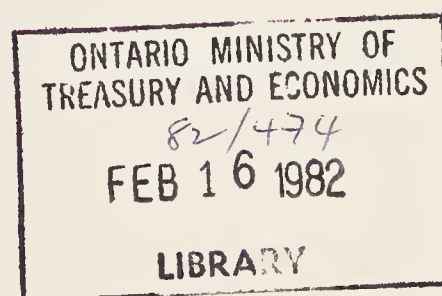
Management  
Consulting  
Services

December 1974





# MANAGEMENT CONSULTING SERVICES





REGIONAL PLANNING INFORMATION  
NEEDS ANALYSIS

Project 567  
Management Consulting Services Division  
December, 1974.



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PROJECT SUMMARY1. MAJOR FINDINGS AND RECOMMENDATIONS

The Regional Planning Branch is currently interested in the development of an increased capability for quantitative analysis. This study was initiated to acquire an overview of the existing data sources, quantitative analysis and information handling systems in existence within government which might be of use to the Branch.

In general, it was found that the present situation offers encouragement that advances can be made in this area within the Branch. It was recognized, however, that much of the potential for improvement lies outside of the Regional Planning Branch. The study findings and recommendations therefore are directed to two distinct topics:

- identification of actions which may be taken internally
- identification of actions which may effect the situations existing external to the Branch

Through the following recommendations, the emphasis has been to protect the uncommitted future options available to the Branch while initiating immediate actions which can reflect obvious benefits.

At present, the staff of the Branch is organized as three action-oriented areas, designated as 'offices', and an additional group to support their operations. The existing support available in the area of data provision and analysis lies in the Statistical Services Section of this latter group. There does not exist within the Branch any organized support for higher level quantitative analysis. We recommend that:

1. *An increased capability for data acquisition and quantitative analysis be provided within the branch in the form of additional personnel possessing training in the areas of statistical analysis,*



*modelling, computer programming etc.*  
*Further, this personnel should be established as a group within the branch providing service to the professional planning staff.*

The creation of this group may subsume the present Statistical Services Section. This group would be charged with the following tasks:

- to increase the analysis and information handling capability of the Branch
- to initiate an iterative process of continued assessment of the data analysis capabilities and information system needs of the Branch
- to form a liaison with other Ministries to provide for the acquisition of the data identified above

In recommending the formation of this group, we recognize that expertise in the areas of quantitative analysis and computer technology is available in the form of consultative services. The level of expertise which should exist in-house would be only that required on a regular basis.

During the past two months, certain staff members of several branches within the Ministry have met as an informal committee to discuss the provision of small area economic time series data. This committee has researched the present situation and determined that a common need exists for some form of inter-ministerial databank. This group has sought support, through a memorandum to branch directors, for the creation of such an Ontario Databank. We recommend therefore that:

2. *The Regional Planning Branch fully support the development of an Ontario Databank for Socio-Economic Analysis.*

The creation of this databank, in conjunction with the Statistics Canada CANSIM/SIS databank, will provide for a large segment of the branches' information needs. In addition, the joint use of such a databank would result in the coordination of data inputs from several Ministries, data which the Branch





would otherwise need to acquire in any case. This effort would effect no cost on to the Branch aside from that cost associated with the direct use of the system.

There are several Ministries within the government who produce and/or utilize data which possesses a predominant geographical significance. Several attempts in the past, in the form of inter-ministerial committees, have been made to coordinate the common usage of such data. Presently, an opportunity exists for the initiation of a integrated land-based data file applicable to all areas of the province. This file could provide the base to which data from other Ministries could be associated via the present computer facilities within government. We, recommend, therefore, that:

3. *The Regional Planning Branch support the creation of the Assessment Valuation File as a multi-user base for an integrated geocoded urban data system.*

The use of this data file, of primary importance to analysis in urban areas, is encouraged by the Assessment Division, Ministry of Revenue. The implications of this effort are discussed more fully in section IV - 1 of this report.

The Ontario Statistical Center (OSC) is the major inter-Ministerial link for users of data in planning, research and policy-making. The incorporation of this center, as the Ontario Statistical Bureau, officially charged with responsibility for all statistical data from all Ministries, is currently being discussed. Within OSC two user committees exist to channel requests and direct user input to OSC and through them to Statistics Canada. Regional Planning Branch, as well as other TEIGA branches have representation on these committees. We recommend that:

4. *The Regional Planning Branch utilize its representation on the Census Data Users Committee to bring about a substantially higher level of data standardization and transferability among Ministries.*



The support of an Ontario Databank would require on an immediate basis the acquisition of a computer terminal facility. Such a facility could be either purchased or leased on a yearly basis. In addition to its use in accessing the CANSIM/SIS data base, the terminal would allow access to several other computer systems (including other government facilities) which would provide on-line statistical analysis facilities within the Branch. The existence of such a terminal facility would also encourage the added use of quantitative analysis technique within the Branch.

We recommend, therefore, that:

5. *The Regional Planning Branch obtain the use of an in-house computer terminal to enhance the availability of data and quantitative analysis techniques to branch personnel.*

The Regional Planning Branch can be recognized as primarily a user of data rather than as a data provider. Much development work on data files and quantitative analysis techniques and information handling systems is being done in other Ministries. And such development efforts within the Branch should only address those needs which cannot be filled by other Ministries, some of which are presently not identified. We recommend that:

6. *At present, no efforts be made to develop an information system, but rather that the branch emphasize a continued identification of their data needs, and development of in-house analytical expertise.*

## 2. TOPICS FOR ADDITIONAL STUDY

During the conduct of this study, it became apparent that there were areas which required further analysis before detailed proposals could be made. These areas should be addressed as additional studies.

The Regional Planning Branch makes extensive use of land-based data. The Branch is entirely dependent upon external





sources for the provision of this data. However, the utility of this data to the Branch is lessened significantly by the multitude of forms of identifiers (x - y coordinates, unique numbering schemes, addresses, etc.) as well as by the actual storage medium used (paper forms, maps, computer tape, etc.). This problem of geographical identification has existed within government for some time and it has been studied by various committees and task forces.

Presently, several pending system developments make a policy decision on the standardized use of geographical identification an immediate problem. The ultimate resolution of this issue will have serious consequences on the growth of the planning capability within the Branch. We therefore suggest that the Branch initiate again, appropriate measures to bring resolution to this issue.

The present study, while addressing the data availability extended to the Regional Planning Branch, did not examine in depth, the requirements for data as perceived by the Branch staff. As a further step in the study of this situation, we believe a continuing dialogue and study of data needs must be initiated internally within the Branch.

In conjunction with this study of data needs, the development of internal capability for quantitative analysis should proceed. The specific requirements for personnel, etc. cannot be determined at this time. However, in conjunction with a study of data needs as suggested above, these questions could also be examined.



## II

### CONDUCT OF STUDY

#### 1. BACKGROUND

This study was conducted by the Information Systems Branch of Management Consulting Services Division at the request of the Regional Planning Branch of the Ministry of Treasury, Economics and Intergovernmental Affairs. The need for such a study was first recognized by staff of the Planning Policy Office and the study was conducted in liaison with Mr. Jim Wessinger, Manager, Social and Economics Planning Policy Section, Regional Planning Branch. This study is seen as an initial step in the development of an expanded capability for quantitative analysis in support of policy formulation within the Regional Planning Branch.

#### 2. TERMS OF REFERENCE

The terms of reference for this study were set in consultation with Mr. Emrick Suichies, Director, Regional Planning Branch. Although the study could be seen to effect the entire Branch, a decision was made to focus on the needs of the Planning Policy Office, as this office was considered the 'leading part' in the need and use for a capability in quantitative analysis.

A convenient typology of the forms of data seen to be required by the Branch was formed as follows:

- small area economic statistics
- land based data
- small area socio-economic data

The specific terms of reference for this study were established as follows:

- 1) review the data and associated information handling systems that are presently available within provincial government Ministries.





- 2) review possible data and information system linkages with other sources external to the provincial government, (i.e.) municipal governments, federal government, universities, etc.
- 3) review current and proposed future developments in this field which may impinge on any information system development work you may undertake.
- 4) recommend both short-range solutions to your existing problems and also, possible directions for longer term development.

### 3. STUDY APPROACH

It was soon recognized that all data does not fall neatly into the typology originally suggested. For the purpose of this study, the following definition of the typology was used:

- small area economic statistics -  
*data which has a predominant temporal basis, (e.g.) time series*
- land data base - *data which has a predominant spatial basis (e.g.) land use categorization*
- small area socio-economic data -  
*data which contains only limited spatial or temporal significance (e.g.) demographic census, social indicators*

In conducting the study, it was also recognized that to enumerate only the present and potential data sources and their use by the Regional Planning Branch, would not fulfill the needs of the Branch.

The process of increasing the objective data input to policy formulation requires a consideration of three related topics; the provision of data, the ability to perform quantitative analysis, and the ability to physically handle the volume of data associated with such analysis.





The provision of data addresses the actual sources of data potentially useful to the Regional Planning Branch. The ability to perform quantitative analysis refers to the establishment of procedures and personnel within the organization to utilize the given data within analysis and modelling techniques leading to formulation of policy. The data handling ability refers to the provision of integrated manual and computer systems to enable the actual physical processing of the volume of data within analysis and modelling techniques.

These topics were utilized in compiling the information gathered in the study and in providing a framework for the recommendations within this report.

#### 4. STUDY METHODOLOGY

In addressing the topics contained within the terms of reference, a number of interviews were conducted with individuals from several provincial Ministries. In addition, inquiries were made by telephone to federal government agencies and to universities. This study did not include a detailed review of the internal capabilities nor climate within the Planning Policy Office. However, discussions were held with several staff members during this study regarding their perceived needs. A compilation and review of literature pertaining to relevant information system developments related to the study was also conducted. A list of the individuals contacted during the study is included in Appendix 1. These individuals also indicated their willingness to accept further inquiries of a more specific nature arising from this study. A list of documents of immediate relevance to this study is contained in Appendix 2.



### III

#### STUDY FINDINGS

##### 1. DATA

###### Small Area Economic Statistics

The need for a coordinated provision of small area socio-economic time series data has been recognized by staff of the Office of Economic Policy. An informal working committee was established to provide a forum to coordinate an intra-ministerial study of the situation. The decision of this committee, as formulated in a memorandum sent to all participating branch directors for approval, is to form a link with the existing Statistics Canada CANSIM/SIS <sup>1)</sup> data system. This linkage would be formulated through the Ontario Statistical Center which would coordinate all input into the data base. Individual branches could then access the total data base through direct computer terminal linkage to the computer service bureau (Societe Mathematiques Appliques) in Montreal, which supports the system.

In addition to the data provided provincially by TEIGA, other Ontario Ministries, namely, Community and Social Services and Health, have expressed interest in participating in this system, including the provision from their Ministries, of relevant social indicators.

The massive existing CANSIM data bases, comprising approximately 66,000 distinct time series, will be augmented by the proposed inclusion of cross-sectional data, namely 4,000 variables on eighteen (18) urban areas. In addition, certain variables from the demographic census may be included in the future.

In brief, the existence and support of this information system within the Ontario government could provide a very strong impetus for the growth of cooperation in data sharing, seen as somewhat lacking in the past.

1) Canadian Socio-Economic Information Management System/ Statistical Intelligence Service





## Land-Based Data

The spectrum of land-based data extends from physical topographic features through man-made structures to the existing or proposed land use and zoning categories designated for urban areas. A majority of the existing provincial Ministries provide or utilize land-based data in some form. For several Ministries, such as Natural Resources and Environment, land-based data forms the core of information required in their operations.

The Ministry of Natural Resources and various federal government agencies provide most of the data on the topographic and natural features of landforms, through their responsibilities for surveys and mapping, and their compilation of data in the Canada Land Inventory and the Ontario Land Inventory. The Ministry of Natural Resources also compile a recreation facilities inventory, a forest resources inventory, and a mineral resources inventory. A large portion of this data is stored in map-based medium; however, efforts are underway to computerize much of this information.

Data pertaining to human developed areas of the province is primarily the product of government operations at the federal, provincial and municipal levels. The ability to acquire data from either the federal or municipal levels of government is presently a difficult task. Aside from organized efforts, such as that of Statistics Canada, neither of these levels of government are operationally prepared to provide data to other levels of government. However, the relations of municipal and provincial governments regarding information sharing are currently under review.

Within the provincial government, the Assessment Division of the Ministry of Revenue is the prime source of land-based data on urban areas. The recent initiation of the Valuation File program within this division holds promise for the creation of a substantive base for planning information at the individual property level.



This file, primarily designed for Assessment Division's storage of market sales information (leading to market value assessment) also contains building permit data, physical features data on buildings and limited topographic data. It can readily be extended to include other data such as land use codes. The Phase I development, which is to be completed by March, 1975, includes coverage of all farms, vacant land, and non-multiple residential properties. The Phase II development, including all multiple residential, commercial, and industrial properties will be completed by the end of 1975. In the interim period, discussion will be initiated with other potential user Ministries regarding the most effective information system design. Manuals describing the potential use of this data will be published in January, 1975. Several other Ministries, including Housing, Environment, and Transportation and Communications, as well as several municipal governments have expressed interest in the use of this data file. The potential use of this file by a broad base of users, from all levels of government, could promote a vastly increased capability for data standardization and transferability.

The Ministry of the Environment gather substantial amounts of data on both rural and urban areas, primarily in response to their regulatory functions. This information includes water and sewer facilities files, a facilities performance file, and a facilities needs file. Efforts are underway within the Ministry to integrate the total information utilized by the Ministry into an information management system (see Appendix 2 for referencing documentation).

The Ministry of Transportation and Communications have been heavily involved in the development of data and information systems for several years. They have pioneered in Ontario, the research into automated storage, retrieval and analysis systems for land based data. A major internal user of data is the Systems Planning





Branch of the Planning Division. Their primary data base consists of the Linear Highway Reference System (LHRS) containing accident, traffic volume, and road inventory data for all major transportation facilities in the province. They utilize this data in assessing the priorities for road construction and repair throughout the province.

The Systems Planning Branch has also done considerable research and development work on land-based, urban information systems. Their present information system, LHRS, is a reduced version of several previous development efforts.

There also exists within this Ministry extensive hardware facilities associated with automated cartography and photogrammetry. Attempts were made to utilize this equipment to prepare geographical referencing systems required as a basis for land-based information. The largest problem faced by these research and development efforts was the cost and organizational change required to gather the initial geographical referencing data. The present efforts within the Ministry are confined to the development of adequate tools to serve the analysis requirements of the

#### Small Area Social Indicators

The primary data source available through the Ontario Statistical Center is the decennial demographic census conducted by Statistics Canada. The most complete public collection of data from this census is provided on magnetic tape to the Ontario Statistical Center (approximately 70% of the data). In addition, OSC receives a subset of the data on microfilm (approximately 40%) and a smaller subset in printed form (approximately 20%). The Regional Planning Branch now receives and uses on a regular basis, only that



data which is available in printed form (the lesser subset), but do, on occasion submit a special request for data through OSC. Data on a large portion of the population, those located in large urban areas has been geocoded and is available in user-specified geographic aggregations. The data possessed by OSC on magnetic tape, which covers the entire province can also be provided on user-specified aggregations (to the enumeration area level). Through the use of the Ontario Geographical Classification Manual, (originally published in 1971, but presently being updated), this data can be aggregated to any of the provincial planning regions through computer processing. Data relating to the Census of Manufacturers is also collected and available from OSC. Because of confidentiality requirements, rather severe limitations on the use of this census exist however. OSC is also engaged in limited research into the development of social indicators.

TEIGA currently has three members on the Census Data Users Committee, one of whom is Mrs. B. Levitt, Manager, Regional Projects and Evaluation. Another, Mrs. H. Salisbury, is a senior economist in the Office of Economic Policy and has been involved in the development of the previously discussed Ontario Databank. Mrs. Salisbury is also a member of the Technical Advisory Group on Statistics, a group which give technical advice on user needs to the Ontario Statistical Center.

A present problem identified within TEIGA, is the frequent occurrence of a multiple request for identical data by different branches of TEIGA to other ministries. In addition, concerns have been raised over the increasing burden placed on local municipalities by similar multiple requests from several provincial government ministries or branches. The logical





growth of the need for such information sharing will demand an increased coordination of such requests for information in the future.

Two substantial sources for data leading to social indicators are the administrative and statistical files of the Ministries of Health and Community and Social Services. For reasons of confidentiality these Ministries have, in the past, been loathe to allow extra ministerial use of their files. However Community and Social Services have been pursuing the development of indicators relevant to planning, (e.g., a monthly welfare index), and have cooperated with Regional Planning Branch personnel in providing data. These indicators and other statistics from CCS are published in their monthly Management Statistics Review. Their Research Branch has indicated a potential willingness to utilize staff in-house to provide analysis of their data for extra ministerial needs if costs of such staff support could be recovered.

In 1969, an inter-ministerial committee was formed to conduct the "Tourism and Outdoor Recreation Planning Study". This group has gathered substantial amounts of data on recreation demand and recreation facilities inventories in computer-readable format. They have developed a predictive computer model which is presently being updated, which will provide data on future demand trends for recreation and tourism facilities in the province.

The Ministry of Education has a planning and research section which prepares statistics required for the planning of new educational facilities throughout the province. The primary information sources they have are in the September Report and the June Board Report prepared by individual schools. A broad range of





statistics useful to Ministry personnel are published in book form under the title, 'Education Statistics'. In addition, special data collection and analysis activities are conducted upon request. An overview of the data available from the Ministry is contained in the Management System Information Guidebook.

## 2. QUANTITATIVE ANALYSIS

### Small Area Economic Statistics

The proposed Ontario Databank based on an affiliation with the CANSIM/SIS system could provide a firm data base and associated quantitative analysis capability for the Regional Planning Branch. However, the Branch would require staff with appropriate areas of expertise to utilize the full potential of this data base. In addition, such staff could be instrumental in determining the unfilled needs for information of the Branch and could act as a representative of the Branch in soliciting the provision of data from other agencies to the Databank. Any data required by the Branch and not provided by external agencies, also could be prepared and input by these Regional Planning Branch staff.

Several advanced statistical analysis and econometric modelling packages are available on the CANSIM/SIS system, for example, MASSAGER, SPSS, TROLL models and CONFERENCE BOARD models. It is also anticipated that the creation of the Ontario Databank would encourage the development of models of segments of the Ontario economy by other provincial government branches and Ministries.

Statistics Canada offers courses in the use of the analytical software (MASSAGER) associated with CANSIM/SIS, as well as instruction and documentation in the contents and use of the CANSIM/SIS database.

### Land-Based Data

The quantitative analysis of land-based data is hampered by the inconsistency of the several sets of



designated geographical aggregation areas in the province. However, the field of quantitative analysis of spatially distributed information has been heavily researched. The depth of this research has always been limited by the problems of quantitative specification of land based features. Limited research in this area has been conducted in a disjoint manner, within provincial Ministries in the past. Recognition of the limitations has prompted the formation of an inter-Ministerial committee to study the associated problems. The work of this committee was curtailed early in 1974, due to the impending formation of the Ontario Statistics Bureau, who were to assume responsibility for this matter.

Several Ministries are heavily involved in sophisticated computer modelling of spatial phenomenon, for example:

TORPS	-	Tourism and Outdoor Recreation Planning Study (MNR)
COMCOT	-	Computer Cottage Study (MNR)
LAKE ALERT	-	Computerized Fish Production Study (MNR)
LUMP	-	Land Use Model for Planning (MNR)
GCARS	-	Generalized Computer Aided Route Selection (MTC)
LAKE DISPERSION MODEL	-	Computerized Water Pollution Dispersion Model (MENV)

It has been indicated that the Planning Policy Office propose to become involved in similar modelling efforts also. Such an effort will require a high level of analytical expertise on the part of the professional and support staff. In addition, acquisition of associated computer expertise might be available on a consulting basis. The required expertise does not appear to exist within the Planning Policy Office at present.





### Small Area Social Indicators

The data contained in the 1971 demographic Census, in its computer readable form, has prompted the development of associated computer-based retrieval and analysis techniques by Statistics Canada. This computer software is publicly available and is presently installed at the Downsview Computing Centre. The present level of usage of Census data by the Regional Planning Branch, that is, the use of the published summaries, could be increased by access to the data in computer-based form. Such access, supplementing the present procedures, would require an increased in-house technical capability. The services provided by the Statistical Services Section might be expanded to fill this need as they might be incorporated into a larger organization providing increased analytical capability.

It was found that the personnel within the Statistical Services Section are capable of assuming some increased responsibility in the field, two being community college graduates and another holding a university degree in statistics. Meanwhile, the manual analysis of non-computer-readable data, as is now performed, could be facilitated if a closer specification and communication of user needs could be provided by the professional staff.

The Ministry of Community and Social Services has been engaged in research into social indicators for the last two to three years. They have advanced the use of computer graphics in the communication and display of these indicators for public use.

The Ministry of Education have been engaged in the development of computer-based forecasting models in the area of student populations and teacher recruitment. They have provided for the acquisition of most of their data requirement for educational planning in a computer-readable form.



### 3. INFORMATION HANDLING

The provincial government is currently undergoing a major change in the configuration of its computer facilities. These changes stem directly from recommendations made by the Committee on Government Productivity. The provision of computer hardware will be made through the development of three central service centers. Access to these computer centers will then be made through terminal facilities within the Ministries. These terminal facilities will be of various capabilities and cost reflecting the needs of the individual Ministries. Tendering for provision of the central computer center facilities is now underway. The computer software packages available at the three computer centers will reflect the specialized emphasis each center will assume. Through the use of standardized software, user Ministries will have some measure of compatibility among the three centers and utilize their services accordingly. The specifications of a data base management system, namely System 2000, will also encourage the standardization and subsequent transferability of data among Ministries. In addition, the centralization of computer system development personnel will potentially result in lower costs to Ministries in the development of new computer applications.

#### Small Area Economic Statistics

The proposed use of the CANSIM/SIS system, based with the SMA service bureau in Montreal, could provide for an extremely inexpensive way of handling small area economic time series data.

The system analysis, design and development costs associated with the provision of similar services could prove to be prohibitive. Even if such a development was to be undertaken, the potential benefits of the use of the existing data base (the 66,00 time series) would be lost. All of the software associated with the system has been developed by Statistics Canada and is free of charge. All data which users store with





the system will be stored free of charge if the data is considered public to all users. The only costs incurred by Ontario government users would be the rental or purchase of a low-speed computer terminal (perhaps shared among several branches) and the billings for actual computer time used. A toll-free telephone line exists from Toronto to Montreal for users of the system. An estimate of as low as \$1,500 fixed charges (terminal) plus \$1,000 (computer time) per year could be foreseen for the next few years. Software available with this system would also include visual presentation packages which could result in savings in clerical labour in report preparation.

#### Land Based Information

Currently several developments within the Ontario government hold promise in enhancing the research and operational capabilities of users of land-based information. However, these developments are presently not being coordinated in any direct way.

The Ministry of Consumer and Commercial Relations formed a Survey Task Force to address the problem of an automated Land Registration System, the result of recommendations of the 1971 Ontario Law Reform Commission. A part of the work of this task force will be the specifications for a computerized land indexing and display system. Recently, the provincial Task Force on Geographical Referencing recommended a uniform metric mapping system for the province based UTM 6<sup>0</sup> coordinate system. Their recommendations also included a computer-based topographic base map compilation and production system. They are presently proceeding with feasibility tests of such a system.

The computer processing systems associated with the Assessment Divisions' Valuation File have not yet been completely designed. They are presently soliciting input from potential users of the file to determine the complete characteristics of the system.



The Survey and Statistical Standards Section of the Ontario Statistics Center has prepared a manual which facilitates the re-aggregation of statistics among different geographical regions. It is presently being updated to reflect the current designated boundaries of Ministry planning and administrative regions.

The Special Studies Section of the Local Planning Policy Branch of TEIGA has recently published a discussion paper on a new land use classification scheme which could provide for a comprehensive operational base for land use classification within the province. The proposed scheme allows for the classification of an individual unit of land along several integrated dimensions, providing for potential use by several Ministries involved with land based information.

The Ministry of Environment have done a complete study of the production, use and associated management of information which they utilize. They have prepared a plan for a modular approach to an integrated management information system for their Ministry.

#### Small Area Social Indicators

The demographic census data in computer-readable form is handled by Ontario Statistical Center personnel through the Downsview Computing Center. A retrieval, display and cross-tabulation program (STATPAK) is available to access this data. The facility for computer mapping of this data also exists in an additional software package (MAPPACK) obtainable from Statistics Canada. The data is presently stored at the enumeration area and census tract level of aggregation. Any special tabulations which can not be produced on this system, can be obtained by special request from Statistics Canada. Presently, the Regional Planning Branch receives all of the published Statistics Canada demographic data. Access to data stored on microfilm or computer tape can be made by





Regional Planning Branch personnel when the need arises. However, it must be recognized that this need can only arise when knowledge of the existence of data is extended to the potential users.

Research work is proceeding at the Ontario Statistical Center, into the standardization of codes, for example, dates and addresses, which will enhance the cross-referencing of data files gathered by different agencies.

The Ministry of Community and Social Services is currently contemplating the development of a statistical information system to support their own planning and research needs. As previously mentioned, the Ministries of Education and Environment have completed studies and prepared outlines for information management systems within their Ministries. The Ministry of Education has subsequently reduced the number of information requests it makes to schools by twenty percent. In addition, their creation of organized data files will possibly lead them into small-scale data base/information system activities.

The Regional Planning Branch should recognize the existence within the Ministry of the Management Services Branch and the Systems Coordinator. The Branch might possibly benefit from the use of the system specialists and organization analysts from that Branch.

The multitude of data types identified in this study, coming from a multitude of data providers, would easily overwhelm any possible attempt at the development of a comprehensive information system within the Regional Planning Branch. The Branch must organize itself internally to utilize to full advantage the sources of data available from other Ministries. In addition, an increased specification and communication of the branches information needs to the potential sources of data could reflect, in time, an increased availability of more readily useful data.



IV  
FURTHER STUDY

1. GEOGRAPHICAL REFERENCING OF INFORMATION

The issue of geographical referencing of government information was first considered on an interdepartmental basis at the Geocoding Seminar held in September, 1970. This seminar, sponsored by the Ontario Statistical Center was used to discuss the then current developments in geographical referencing within the province and also to discuss the plans of Statistics Canada to geocode the decennial census information.

Following this seminar, an Interdepartmental Committee on Geocoding was established under the auspices of Treasury Board.

Subsequently, a portion of the work of this Committee was taken on by the Interdepartmental Data Base Planning Committee first proposed in October, 1971. Because of the government reorganization resulting from the Committee on Government Productivity's recommendations, the establishment of this Committee was postponed until December, 1972. This Committee first met in February, 1973 and commissioned Management Consulting Services to prepare a position paper, outlining the scope and priority of the problems to be addressed by the Committee.

Although geocoding was placed high on the priority list, the Committee did not choose to study the problem immediately. In March, 1974, the Committee decided to disband and transfer its material and responsibilities to the Ontario Statistical Bureau, which was about to be created. However, the establishment of the Ontario Statistical Bureau has been delayed. As a result of that, the several priority problems identified by the Committee's work, including the problem of geocoding have not been studied.

During this period of four years, several Ministries have embarked on research and development projects related to the geographical referencing of information, the most noteworthy being the Urban Data Referencing System (UDRS).





undertaken by the Ministry of Transportation and Communications and a property identification project undertaken jointly by the Ontario Statistical Center, Ministry of Transportation and Communications and the Ministry of Revenue. Meanwhile, a host of other studies and indeed operational system developments have occurred elsewhere, both within the United States and Europe. Many of the technological barriers to the creation of operational systems have been overcome, and in particular, the developments in computer hardware and software have reduced the expected costs of such geocoding projects.

Currently, within the provincial government, several programs related to geographical referencing are underway. The Survey Task Force of the Ministry of Consumer and Commercial Relations is just completing their study and system design for a Land Indexing and Display System. The Ministry of Transportation and Communications is presently utilizing its Linear Highway Referencing System. The Task Force on Geographical Referencing has presented an initial report and is currently initiating a feasibility study of the use of automated cartography in producing provincial base maps. The Ontario Statistical Center has developed computer software for geocoding in rural areas, based on the county lot, parcel and concession boundaries. Meanwhile the Assessment Division, Ministry of Revenue, is creating an Assessment Valuation File containing data based on all assessed properties in the province. This file will contain data publicly available for planning purposes by other Ministries and local municipalities.

In addition to these developments, the government computer facilities and support staff are undergoing reorganization and development. The hardware facilities are centralized into three large computing centers with the potential for Ministerial contact via remote terminal facilities located within each Ministry. The associated computer system development staff have been brought together as one division within the Ministry of Government Services. They are providing their services in system analysis, design and development on a 'charge-back' basis. The government is also committed



to the use of data base management systems (primarily System 2000) for use in new Ministry computer applications. All of these developments will lead to greater standardization of computer system developments.

In summary, there is a need for the study of standardization of the geographical identification utilized within the government, as extensive resources are about to be committed to future system developments. The projects currently underway and approaching implementation stages are logically separate yet interrelated endeavours. Potential benefits accruing from these projects would be increased if a coordinated effort towards the use of standardized geographical identifiers within these systems was made. This effort would not necessarily result in an major re-direction of these projects, but rather it would produce the potential for a coordinated use of the resulting systems by several other Ministries. Meanwhile, the technological situation now existing within government could support such endeavours towards standardization.

The Committee on Government Productivity, in its Interim Report #8, addressed the problem of a Geographical Referencing System. Their report stated, "...we chose not to recommend a separate geographical referencing system, ...solely for land-use planning", but "a cooperative and comprehensive system made more sense as soon as...the necessary resources and technology were available", and further that "because of the significance of geographical referencing to so many programs, it seems appropriate that a policy decision be made to coordinate the efforts leading up to its implementation" (page 36).

The Regional Planning Branch is a major user of land-based (therefore, geographically referenced) data, all of which is provided by other branches or Ministries. The need for standardization of the geographical referencing of this data, even with present manual processing operations, is







recognized. Therefore, we believe it opportune at this time that the Branch initiate action to assure the future standardization of its data requirements. We suggest that a further study of this problem, perhaps on an inter-Ministerial task force basis, (reporting to Cabinet for policy decision), be undertaken. In conjunction with this study, we suggest that a continuing coordination of the users and developers of data files utilizing geographical referencing be instituted.

2. DATA NEEDS OF THE REGIONAL PLANNING BRANCH

The results of the present study indicated the primary sources and types of data available from other government agencies for use by the Regional Planning Branch. Very little time was spent during this study assessing the demand for various types of data nor identifying particular needs. The present study was regarded as a first step in a necessarily iterative process, aimed at improving the availability of data. The next logical step in this process would be an initial attempt at specifying the internal needs for data of various types. Such a study could well coincide with the study of quantitative analysis techniques in the Branch. Again, such an effort would serve to re-affirm that the coordination of the day-to-day processes of the Branch follow the established objectives of the Branch. This proposed study could also address the problem of the establishment of a focal point for liaison regarding data exchange with other Ministries. The development of such a focal point could assume the extended use of data within the Branch through dissemination of the knowledge of its existence to all Branch personnel.

3. INTERNAL REQUIREMENT FOR QUANTITATIVE ANALYSIS PERSONNEL

The study of data availability was initiated due to a desire for an increased quantitative analysis capability within the Regional Planning Branch. This study, while addressing the availability of data external to the Branch,



also identified efforts being made to utilize quantitative analysis techniques in other Ministries. There presently exists within the Branch a Statistical Services Section, who support the professional planning staff, through manipulation of data to suit particular study requests. While this level of staff support is required, it cannot satisfy the need for highly complex statistical analysis, simulation, nor modelling. However, the high proportion of recent graduates on staff within the Branch provides a substantial base of individuals capable of designing such analysis and offering interpretation of the results. In fact, certain members of the staff might readily be able to conduct the analysis. Generally, however, there is a need for resource personnel who are highly qualified in statistics, modelling and computer technology, and secondarily having an interest and awareness in current planning techniques. The need for such personnel, that is, the number of staff, their level of expertise, etc. cannot be readily identified at this time. Initially, the provision of such services could come from the consulting industry. No clear pattern exists across the government in this regard; some Ministries rely heavily on outside consultants, while others maintain a large number of highly technical staff.

We feel that this subject warrants additional study in its own right. However, we must caution that such a study must first ascertain the commitment and use of quantitative analysis in support of identified Branch objectives. Such a study could then perhaps also be utilized as an impetus for the reformulation of these objectives at the staff level.





## APPENDIX 1

### LIST OF CONTACTS:

- MINISTRY OF COMMUNITY AND SOCIAL SERVICES

Mr. D. Hermann, (\*)  
Research Officer,  
Research Branch,  
Program Development Division.

- MINISTRY OF CONSUMER AND COMMERCIAL RELATIONS

Mr. C. Hadfield, (\*)  
Director, Legal Surveys Branch,  
Property Rights Division.

- MINISTRY OF EDUCATION

Mr. G. Bonham, (\*)  
Chief Educational Officer, Planning,  
Planning and Research Branch,  
Education Development Division.

- MINISTRY OF THE ENVIRONMENT

Mr. J. Donnan (\*)  
Senior Economist,  
Land Use Coordination & Special Studies Section,  
Environmental Approvals Branch,  
Environmental Assessment & Planning Division.

- MINISTRY OF HOUSING

Mr. R. Binsell, (\*)  
Manager, Survey and Statistical Analysis,  
Policy and Program Development Secretariat.

Mr. C.P. Ind,  
Senior Policy Advisor,  
Policy and Program Development Secretariat.

(\*) potential liaison personnel



- MINISTRY OF INDUSTRY AND TOURISM

Mr. D. MacAlpine, Consultant,  
Management Consulting Services Division,  
Ministry of Government Services,  
RE: Tourism and Outdoor Recreation Plan Study.

- MINISTRY OF NATURAL RESOURCES

Mr. P.G. Rimmington, (\*)  
Supervisor, Land Use Planning,  
Land Use Coordination Branch,  
Division of Lands.

Mr. W. Jenns,  
Task Force on Geographical Referencing,  
Survey and Mapping Branch,  
Division of Lands.

Dr. W. Henson,  
Director,  
Policy Research Branch.

- MINISTRY OF REVENUE

Mr. D. Ritchie, (\*)  
Assessment Standards Branch,  
Assessment Division.

- MINISTRY OF TRANSPORTATION AND COMMUNICATIONS

Mr. F. DeVisser, (\*)  
Head, Systems Analysis Office,  
Systems Planning Branch,  
Planning Division.

- MINISTRY OF TREASURY, ECONOMICS AND INTERGOVERNMENTAL AFFAIRS

Mr. J. Elliott,  
Economist,  
Office of Economic Policy,  
Policy Planning Branch.





Ms. S. Cohen,  
Economist,  
Office of Economic Policy,  
Planning Policy Branch.

Ms. C. Craddock,  
Economist,  
Planning Policy Office,  
Regional Planning Branch.

Mr. W. Duffey,  
Systems Coordinator,  
Systems Advisory Group,  
Management Services Branch.

Mr. S. Sharma, (\*)  
Consultative & Coordinating Secretariat,  
Ontario Statistical Centre.

Mr. O.N. Ferik,  
Statistical Standards,  
Ontario Statistical Centre.

Dr. J. Singh,  
Surveys and Statistical Standards,  
Ontario Statistical Centre.

Mr. M. Sinclair,  
Manager, Special Studies Section,  
Local Planning Policy Branch,  
Urban and Regional Planning Division.

Mr. C. Tappenden,  
Statistical Services,  
Program and Project Support,  
Regional Planning Branch,  
Urban and Regional Planning Division.



Mr. R. Burns,  
Manager, Program and Project Support,  
Regional Planning Branch,  
Urban and Regional Planning Division.

Messr. Richardson, Bigenwald, Fraser and Wessinger,  
Planning Policy Office,  
Regional Planning Branch,  
Urban and Regional Planning Division.

- STATISTICS CANADA

Mr. D. Newson, (\*)  
Census Users Service,  
(Toronto Office).

- ENVIRONMENT CANADA

Mr. D. MacKay,  
Science Policy Branch.

- YORK UNIVERSITY

Mr. J. Tibert, (\*)  
Systems Analyst,  
Institute for Behavioural Research.





## APPENDIX 2

### SELECTED BIBLIOGRAPHY: DATA SOURCES

#### Assessment Valuation File:

1. Users Reference Manual (Volume 1).
2. Property Codes and Data Elements (Volume 2).  
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